

In the claims:

Claims 1-20 cancelled.

21. (currently amended) A sintered three-dimensional (3D) high temperature superconducting (HTS) macro-ceramic solid product with honeycomb-like superconductive nano-architecture, comprising a sintered structure containing uniformly aligned $YBa_2Cu_3O_{7-x}$ (YBCO) ceramic crystal grains with a length of 10 – 25nm and silicate glass or inorganic nano-thick films or nano-size dots that locate in nano-thick boundary areas of said superconductor ceramic crystal grains, and said nano-size films or dots provide honeycomb-like 3D nano-size network within said sintered 3D HTS solid product or HTS ceramic lead, and said electric lead is superconducting at least at liquid nitrogen temperature.

22. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said HTS ceramic crystal grains are composed of $YBa_2Cu_3O_{7-x}$ ceramic crystals, and an average number of oxygen atoms in a stoichiometric formula of $YBa_2Cu_3O_{7-x}$ ceramic crystals, where "x" may be varied in a range $0 < x < 0.3$, is so that it provides superconductivity of the HTS ceramic crystal grains and said sintered HTS ceramic lead or 3D HTS macro-ceramic product.

Claim 23 cancelled

24. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said ceramic crystal grains are fully dense sintered, which causes substantial decrease of the nano-thick grain boundary gaps and, consequently, facilitates Josephson junction or tunneling superconducting inter-grain effects, resulting in an electric current flux transfer between said sintered superconducting ceramic crystal grains that constitute superconductivity of the sintered 3D HTS macro-ceramics or said HTS ceramic electric lead.

25. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said 3D network of said silicate glass or silver or inorganic nano-size or nano-thick films and dots are configured, so that it facilitates 3D percolation and vortex-pinning network effects, resulting in an electric current flux transfer between said sintered superconducting ceramic crystal grains that constitute superconductivity of the sintered 3D HTS macro-ceramics or said HTS ceramic electric lead.

26. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said HTS lead comprises sintered $YBa_2Cu_3O_{7-x}$ ceramics coating nickel-chromium or *NiCr* or 'nichrome' alloy

substrate strand, said HTS strand has the efficient substrate/ceramics cross-section ratio of about 1 : 1, and said HTS strand is configured so that it reliably transfers electric current of 10 – 20kA/cm² that 50 – 100x higher than engineering electric current carrying capability or capacity of the ordinary copper wire.

27. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said HTS macro-ceramics comprise $YBa_2Cu_3O_{7-x}$ ceramics and achieve at liquid nitrogen cryogenic temperature an electric current carrying capability $\geq 10^8$ Ampere/cm².

28. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein said HTS macro-ceramics provide at liquid nitrogen cryogenic temperature substantial magnetic levitation or Meissner effect.

29. (previously presented) A sintered HTS ceramic electric lead as defined in claim 21, wherein under mechanical impacts said HTS macro-ceramics have the enhancing fracture toughness and ductility.